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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,319	12/23/2005	Yoshinobu Watanabe	10873.1837USWO	5814

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EXAMINER	
BOR, HELENE CATHERINE	

ART UNIT	PAPER NUMBER
3768	

MAIL DATE	DELIVERY MODE
06/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,319	WATANABE ET AL.	
	Examiner	Art Unit	
	HELENE BOR	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05/21/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *journal article*.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's verified English translation for foreign priority under 35 U.S.C. I 19(a)-(d). Thus overcoming the 35 USC § 102(e) rejection.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this can be found in a prior Office action.

3. Claims 1-15 & 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa (Hasegawa et al. Modified Phased Tracking Method for Measurement of Change in Thickness of Arterial Wall Japanese Journal of Applied Physics. Vol. 41 (2002) pp 3563-3561. Part 1, No. 5B, May 2002; enclosed herein).

Claim 1 & 9: Hasegawa teaches an ultrasonic diagnostic apparatus, comprising a transmission unit that transmits at least one ultrasonic pulse, wherein the at least one ultrasonic pulse is transmitted from a skin surface of a subject toward a blood vessel thereof (Figure 1, *Ultrasonic transducer, Skin surface* & *Arterial wall).* Hasegawa teaches a reception unit that receives an ultrasonic echo signal based on the at least one ultrasonic pulse and converts the same into an electric signal, wherein the ultrasonic echo signal is reflected by the blood vessel to obtain the electric signal of the ultrasonic echo signal representative of a depth direction from the skin surface (Figure 1, Element *Ultrasonic transducer* & *Received signal).* Hasegawa teaches a movement detection unit that analyzes a

phase of the ultrasonic echo signal wherein the phase of the ultrasonic echo signal is representative of a direction traversing the blood vessel so that the movement detection unit calculates a movement amount in each of a plurality of parts included in a blood vessel wall constituting the blood vessel and a vicinity of the blood vessel wall (Figure 1, Element *Workstation* & Figure 3). Hasegawa teaches a boundary detection unit that detects a boundary position, wherein the detected boundary position is between the blood vessel wall and a blood flow region in a lumen of the blood vessel through which blood flows based on a variation in the calculated movement amount in each of the plurality of parts [of the intimal side and the adventitial side of the arterial wall] (Figure 1, Element & Page 3563, Section I, Last Paragraph).

Claim 2 & 10: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising a ROI placement unit that sets placement of a ROI, wherein the ROI is set where the boundary position along the depth direction from the skin surface is to be detected by the boundary detection unit, wherein the ROI placement unit places the ROI so as to lie over at least one of an anterior wall of the blood vessel wall on a side closer to the transmission unit and a posterior wall of the blood vessel wall on a side farther from the transmission unit (Figure 14, Elements *Intimal window* & *Advertitial window).*

Claim 3: Hasegawa teaches an ultrasonic diagnostic apparatus wherein the transmission unit transmits a plurality of ultrasonic pulses toward a plurality of parts along a longitudinal direction of the blood vessel, and the boundary position detection unit detects the boundary position for each of the plurality of parts *[p1* &

p2] along the longitudinal direction of the blood vessel (Figure 11-13 & Page 3568, Section 4).

Claim 4: Hide teaches an ultrasonic diagnostic apparatus further comprising a filter processing unit that performs filter processing, wherein the filter processing unit processes of-data representing the boundary position along the longitudinal direction of the blood vessel that is detected by the boundary position detection unit (Figure 1, Element low-pass *filter)* Hasegawa teaches an ultrasonic diagnostic apparatus further that displays an image, wherein the image is that of the blood vessel in cross section along the longitudinal direction of the blood vessel based on the boundary position along the longitudinal direction of the blood vessel that is detected by the boundary position detection unit (Figure 11).

Claim 6: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising an average processing unit that performs average processing of data, wherein the data represents the boundary position that is detected by the boundary position detection unit based on data representing a boundary position obtained a predetermined number of measurement cycles before (Page 3563, Section I, Last Paragraph).

Claim 7: Hasegawa teaches an ultrasonic diagnostic apparatus, wherein the measurement cycles include a heartbeat cycle of a blood flow that flows through the blood vessel (Figure 13, Element (b)).

Claim 8 & 13: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising an average processing unit that performs average processing of data: wherein the data represents the movement amount of the blood vessel wall that

is detected by the movement detection unit based on data representing a movement amount obtained a predetermined number of measurement cycles before (Figure 4, Element spatially averaged displacement & Figure 5, Element *spatially averaged change in thickness*).

Claim 11, 12, 14, 17 & 18: Hasegawa teaches an ultrasonic diagnostic apparatus, further comprising a calculation unit that measures a thickness, wherein the thickness is measured from the inner membrane to the middle membrane based on the boundary position and the position of the middle membrane (Page 3566, Section 2.2) and based on a variation over time in the boundary position and a variation over time in the position of the middle membrane in one heartbeat cycle (Page 3563, Section I, Last Paragraph & Figure 12, Element (b)).

Claim 15: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising a display unit that displays a part where a maximum thickness is measured among the thicknesses measured at the plurality of parts (Figure 3).

Claim 16: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising an angle correction unit that performs angle correction, wherein the angle correction is performed with respect to a value of the thickness corresponding to an angle formed between a measuring direction of the thickness calculated by the calculation unit and a direction perpendicular to the blood vessel wall (Figure 6).

Claim 19: Hasegawa teaches an ultrasonic diagnostic apparatus, ultrasonic diagnostic apparatus according to claim 11, further comprising a unit that

displays a value of the thickness calculated by the calculation unit on a monitor (Figure 12 & 13, Element (e)).

Claim 20: Hasegawa teaches an ultrasonic diagnostic apparatus further comprising a unit that displays the boundary position, wherein the unit displays the boundary position and the position of the middle membrane detected by the boundary detection unit on a monitor (Figure 11).

Response to Arguments

4. Applicant's arguments, see Page 8-9, filed 05/21/2009, with respect to the rejection(s) of claim(s) 1-20 under 35 USC § 102(e) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view Hasegawa et al. Modified Phased Tracking Method for Measurement of Change in Thickness of Arterial Wall. Japanese Journal of Applied Physics. Vol. 41 (2002) pp 3563-3561. Part 1, No. 5B, May 2002).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE BOR whose telephone number is (571)272-2947. The examiner can normally be reached on M-T 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 3768

/Eric F Winakur/
Primary Examiner, Art Unit 3768